California Energy Commission
2014 Accomplishments

Transforming Transportation

- Building on Governor Edmund G. Brown Jr's goal of getting 1.5 million zero-emissions vehicles (ZEVs) on the road by 2025. As of August, the 100,000th plug-in electric vehicle (PEV) was sold and the Alternative and Renewable Fuel and Vehicle Technology Program (ARFVTP) has funded over 9,300 electric vehicle charging stations of which over 6,600 have been installed.
- Developed a $100 million investment plan for the ARFVTP. The program invests in technologies to reduce greenhouse gas emissions from the transportation sector, which accounts for about 40 percent of California's emissions. To date, more than $500 million has been invested in more than 400 projects as a way to cut pollution and create jobs in California.
- Awarded more than $50 million in ARFVTP funding to boost the refueling network for hydrogen fuel cell electric vehicles (FEVs). Two stations in Diamond Bar and West Sacramento came online in 2014.
- Partnered with the U.S. Air Force to launch its first non-tactical vehicle fleet comprised of PEVs at Los Angeles Air Force Base. The 42-vehicle fleet project marks a milestone in the partnership between federal, state and private energy organizations, and is the largest vehicle-to-grid pilot project of its kind.
- Launched a *Driving to Cleaner Transportation* web site showcasing innovative ways schools, companies and governments are replacing petroleum-based fuels and vehicles with cleaner ones that will help California meet its ambitious climate goals.
- Partnered with South Coast Air Quality Management District to develop and demonstrate advanced natural gas engine technologies that drive reduction of nitrogen oxide (NOx) emissions up to 90 percent below 2010 California Air Resources Board Emissions Standards. The NOx emission reductions in heavy-duty transportation are critical for California to meet ozone attainment goals.
- Awarded more than $45 million to 12 pilot-scale advanced biofuels production facilities, producing a total of over 55 million diesel gallon equivalents of low-carbon fuel per year.

Developing Renewable Energy

- Revised and streamlined regulations for the Geothermal Grant and Loan program, and completed a competitive solicitation offering up to $5.8 million in grant funding to four applicants for geothermal planning, exploration, and research and development.
- Approved $1.9 million in Renewable Energy and Conservation Planning grant funding to four qualified California counties to facilitate the development of renewable energy resources.
- Became the sole administrator for the New Solar Homes Partnership program in September, providing a single point of contact for participants while significantly reducing program costs.

Since taking over the program, the Energy Commission substantially reduced a months-long backlog of rebate claims and issued payments for close to $5 million for 2.4 megawatts of installed rooftop photovoltaics (PV) on new homes.

- Instituted wind data collection process that provides detailed information on in-state wind generation performance, allowing analysis of the wind generation systems, locations, and future growth.

Certifying Power Plants

- Reached a major milestone for making informed and responsible locations of large-scale solar and wind generation projects with the Desert Renewable Energy Conservation Plan (DRECP). The DRECP Draft Environmental Impact Report/Draft Environmental Impact Statement (EIR/EIS) was released in September.
- Oversaw the construction of one 624 megawatt gas-fired power plant and four solar-thermal power plants totaling 1,355 megawatts of generation capacity.
- Approved a cleaner and more efficient gas-fired power plant replacement project with a total generating capacity of 939 megawatts.
- Documented a 17 percent improvement in natural gas-fired generation thermal efficiency (more energy generated with less natural gas burned) since 2001.

Encouraging Energy Efficiency

- Implemented the *2013 Building Efficiency Standards*, which took effect July 1 and will increase energy savings from new residential and nonresidential buildings. The standards will lead to 25 percent less energy consumption for residential buildings and 30 percent less for nonresidential buildings.
- Approved local energy ordinances adopted by the City of Pasadena, City of Los Angeles, and the City and County of San Francisco that exceed the 2013 building standards.
- Approved two alternative software options for the 2013 building standards, giving contractors flexible tools to test energy use in building designs; and approved private vendor Alternative Calculation Method software for EnergyPro and Energy-Right for residential buildings and EnergyPro and IES Virtual Environment for nonresidential buildings.
- Established the Acceptance Test Technician Certification Providers Program (ATTCP) for the 2013 building standards to ensure that technicians receive proper training to test lighting controls and mechanical installations in nonresidential buildings.
- Approved updated specifications for LED lights to promote high-quality LED lights and to speed consumer acceptance of LEDs.
- Approved more than 200 energy expenditure plans (EEPs) for energy efficiency and solar improvements at schools under the California Clean Energy Jobs Act (Proposition 39) and updated guidelines for Local Education Agencies. The plans include more than 600 energy efficiency and renewable energy projects that are projected to reduce annual energy

consumption by approximately 70 million kilowatt hours (kWh), 550,000 therms, 28,000 gallons of propane, and 6,000 gallons of fuel oil. This will result in approximately $12.6 million in annual energy savings.

- Approved 32 Energy Conservation Assistance Account (ECAA) low and zero-percent interest loans totaling $47.9 million for energy efficiency and solar projects benefiting eligible cities, counties, schools, special districts, public colleges and universities, public care institutions, and public hospitals. These projects are expected to save 27.6 million kWh and 81 thousand therms with an annual energy cost savings of $4 million.

Investing in Energy Innovation

- Launched the $330 million clean energy research plan funded by the Electric Program Investment Charge (EPIC). EPIC awards fund potentially game-changing research that could lead to more reliable, lower-cost and safer electricity.
- Collaborated with the California Public Utilities Commission (CPUC) and California Independent System Operator (Cal ISO) to develop California's first *Energy Storage Roadmap* that prioritizes storage issues and identifies the most appropriate agencies to develop solutions to advance energy storage markets.
- Awarded approximately $10 million to seven new research and development (R&D) projects to develop new and enhanced tools and technologies that improve the cost and efficiency of thermal energy storage. These will ideally lead to increased capacity and dispatch capabilities of concentrating solar power.
- Supported research to facilitate the development of battery recycling systems that are a cost-effective, sustainable solution for PEV batteries. The recycling technology will be capable of recovering high-value materials that can offset higher up-front costs of EVs and reduce hazardous waste. Preliminary results suggest that the recovery of these materials can reduce battery pack costs by up to 40 percent.
- Awarded $24.3 million in natural gas research funds for 29 energy research projects including energy efficiency, transportation, pipeline safety, biogas and CHP.
- Completed 47 PIER electric projects. Energy efficiency RD&D projects in 2014 made advancements in identifying technologies and strategies to increase building and facility energy efficiency. Research results show that up to 90 percent improvement in air tightness can be achieved, reducing the loss of conditioned air and consequently the demand for cooling and heating. PIER also funded solar forecasting and distributed renewable energy projects, enabling further incorporation of renewables in California. Further, PIER research success with flow battery energy storage in 2014 benefitted efforts to increase wider adoption of storage in the state, and transportation research highlighted a plug-in electric vehicle lithium-ion battery recycling technology that can reduce battery pack costs by up to 40 percent.

Supporting Interagency Coordination on Climate Change Research

- Produced California's first-ever Climate Change Research Plan, which complements and supports goals set forth in critical policy documents, including the Environmental Goals and Policy Report, the AB 32 Climate Change Scoping Plan, and Safeguarding California.
- Led the interagency Research Working Group established by California's Climate Action Team to bolster coordination on state-sponsored climate change research.

Managing Electricity Supply

- Adopted the first of new annual updates to the IEPR energy demand forecast (*California Energy Demand Updated Forecast, 2015-2025*), to be used in the Cal ISO Transmission Planning Process and the CPUC Long-Term Procurement Process. This forecast also includes new short-term peak demand requirements for use in local area planning by the Cal ISO.
- Collaborated with the CPUC, utilities, and solar industry manufacturers to require increasingly smart inverters on all rooftop solar system installations. Inverter communication capabilities allow rooftop solar systems to operate more efficiently for customers and be more responsive to system needs.